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1. Introduction

A number of theorists hold that literal, linguistic meaning is determined by the cognitive mechanism that underpins semantic competence. Let us call this view the *cognitivist account of meaning* (or simply *cognitivism*). In this paper, I discuss a surprisingly serious difficulty that cognitivism faces in light of the liar paradox.

My focus is on the form of cognitivism developed extensively by, for example, Emma Borg (2004, 2012) and Richard Larson and Gabriel Segal (1995). Such authors build into cognitivism a particular view about semantic competence: that it is underpinned by the speaker's cognition of a truth-conditional semantic theory, of the general form advocated by Davidson (1967). Such a semantic theory is a recursively axiomatised formal theory that contains axioms assigning semantic values to each lexical item of the object language and axioms assigning semantic values to complex expressions on the basis of their constituents and mode of composition. For each sentence, X, of the object language, the semantic theory yields a *T-sentence*, a theorem of the form "X is true if, and only if, *p*".[1] I shall say that a T-sentence is *correct* if the sentence replacing "*p*" states the condition under which X is true; it follows that a correct T-sentence is true. For ease, I shall hereafter reserve the term "semantic theory" for semantic theories of this general form; and I shall say that such a semantic theory is *correct* just in case its axioms are true and it yields only correct T-sentences.

It is contentious exactly what *cognition* of a semantic theory amounts to. However, one way or another, to say that a speaker *cognises* a semantic theory is to make a substantive, empirical claim about the cognitive mechanisms that underpin her semantic competence. The rough idea is that speakers possess a modular language faculty that includes a dedicated semantic module, and that a given speaker cognises a semantic theory *T* just in case her semantic module realises, encodes, processes, or stands in some other suitable relation to, *T*. Whatever the details, there is no presumption that cognition is factive: to say that a speaker cognises *T* is not *thereby* to say that *T* is true. Let us call this view of semantic competence the *neo-Davidsonian account of semantic competence*. For Borg, and Larson and Segal, this cognitive mechanism determines linguistic meaning: the cognised semantic theory is correct.

[1] I largely put aside the issue of context sensitivity in this paper, taking it up principally in §4.1 to discuss Burge's indexicalist account of truth.

I shall argue that, so understood, cognitivism faces a surprisingly serious difficulty in light of the liar paradox. Consider the liar sentence λ:

λ is not true.

Without loss of generality, we can treat λ as a sentence of English – perhaps, for example, by treating the letter "λ" as an abbreviation of the definite description:

the first centrally aligned sentence in the paper "the cognitivist account of meaning and the liar paradox".

Intuitively, λ is a subject-predicate sentence whose subject denotes λ, and whose predicate is satisfied by whatever is not true. As such, we might initially expect the following to be the T-sentence for λ:

(T_λ) "λ is not true" is true if, and only if, λ is not true.

However, (T_λ) implies a contradiction (by substitution of co-referring terms and by considering cases). So, on pain of inconsistency, it seems that (T_λ) must be rejected.

The potential difficulty for the cognitivist is clear. If it turns out that speakers cognise a semantic theory that has the T-sentence (T_λ) amongst its theorems, then the cognitivist would seem to be committed to (T_λ) being correct. That is, the cognitivist would seem to be committed to (T_λ) being true. Given that (T_λ) is inconsistent, this would be a serious problem.

Once I have said a little more about the cognitivist account of meaning (§2), I shall provide (§3) an argument for the claim that, assuming the neo-Davidsonian account of semantic competence, ordinary speakers *do* cognise a semantic theory that includes (T_λ) amongst its theorems. I shall then (§4) discuss a number of lines of response, drawing out some of the difficulties facing each response, before concluding (§5).

It should be made clear before we begin that the difficulty cannot simply be brushed aside. First, it will not do for the cognitivist to simply reject the neo-Davidsonian account of semantic competence. The account is at the heart of perhaps the most extensively worked out form of cognitivism – that of Borg, and Larson and Segal – , and it would be a major, and highly unwelcome, concession to admit that this form of cognitivism is inconsistent. Moreover, it is not clear to me that the concession would be methodologically sound: it is an empirical question about our cognitive make-up whether the neo-Davidsonian account of semantic competence is correct, and we should not reject it just because it might not be straightforwardly combined with an account of linguistic meaning. Of course, there may be *independent* reasons to deny the neo-Davidsonian account of

semantic competence.[2] I do not think, however, that empirical accounts of the cognitive mechanisms that underpin semantic competence draw evidential support from their facilitating a solution to the liar paradox; so we should not reject such an account on the basis of the paradox.

Second, it is a purely empirical matter what the theorems of the cognised semantic theory are. And, in particular, it is a purely empirical matter whether a cognised semantic theory has (T_λ) amongst its theorems. If a cognised semantic theory is to do real explanatory work, it may not simply be *stipulated* that it, say, encodes a solution to the liar paradox. A theorist's preferred solution to the paradox may not simply be 'read back' into the cognitive mechanism that underpins semantic competence.

Third, the discussion here is likely to generalise. It is the particular way that the cognitivist ties linguistic meaning to the cognitive mechanism underlying some of our linguistic dispositions that causes difficulties in relation to the liar paradox. But there are other accounts of meaning that tie meaning to linguistic dispositions, such as views that ground meaning in speakers' dispositional states (e.g. Field 1977), speakers' causal states (e.g. Davies 1987, Evans 1981), and some hypothetical process of radical interpretation (e.g. Davidson 1973). If the liar paradox poses a serious difficulty to cognitivism, then it likewise poses a serious difficulty to a whole range of empirically-minded accounts of meaning. It is worth getting clear on the full extent of the difficulty posed by the liar paradox to cognitivism.

2. Background and terminology

Let me begin by clarifying a few terms. First, a speaker's *semantic competence* is her idealised capacity to interpret each of the lexical items, complex expressions and sentences of her language.[3] There is no built-in assumption that the speaker's interpretation is correct. (And, thus, it may not simply be assumed that semantic competence is just a matter of knowing what linguistic expressions mean.) An *account of semantic competence* is, then, an empirical hypothesis about how the cognitive make-up of speakers is such that speakers have semantic competence. According to the *neo-Davidsonian* account of semantic competence, speakers possess a semantic module, whose inputs, processes and outputs in some way mirror a particular semantic theory.[4] That is, for the neo-Davidsonian, semantic competence is underpinned by the cognition of a semantic theory (of the

[2] See e.g. Chomsky 2000, Pietroski 2003. See also Laurence 1996 for a brand of cognitivism that does not incorporate the neo-Davidsonian account.

[3] Cf. Chomsky's distinction between *competence* and *performance*. See e.g. Chomsky 1965: 4.

[4] Different theorists employ different conceptions of modularity here. For Borg, this module is a genuine Fodorian module (characterised in particular by domain specificity and informational encapsulation); see Borg 2004: 74ff, and Fodor 1983. Larson and Segal, however, prefer a weaker understanding of modularity (1995: 557-558n23).

general form put forward by Davidson). Throughout this paper I shall assume the neo-Davidsonian account of semantic competence for the sake of argument.[5]

Cognitivism, in contrast, is a view about linguistic meaning. In particular, it is the view that the cognitive mechanism that underpins semantic competence determines meaning. For example, Borg tells us that

> an interpretation is the right/wrong one if it matches/fails to match the one generated by the semantic theory actually [cognised] by ordinary speakers. (2010: 35)

Similarly, Larson and Segal (1995) construe the task of providing an account of meaning as "specify[ing] precisely the contents of the semantics module" (p.23), where the module in question "underlie[s] our grasp of semantic *facts*" (p.25, my emphasis).

There is an ambiguity here to note. Consider the claim that the cognitive mechanism that underpins semantic competence *determines* meaning. Is this a *metaphysical* notion of determination? That is, does the cognitivist claim that the cognitive mechanism that underpins semantic competence *metaphysically determines*, or *grounds*, linguistic meaning? Cognitivists sometimes seem to suggest so. For one example, Borg states that:

> [w]hat makes "grass is green" mean that grass is green is that this is the content delivered by the semantic theory contained within a subject's language faculty; *grounding is thus achieved by appeal to contents of the mind*. (2010: 35, my emphasis)[6]

If we understand determination with this metaphysical flavour, then we obtain a version of cognitivism along the following lines.

> *Metaphysical cognitivism*: the cognised semantic theory is correct, and it is correct in virtue of its being cognised.

However, there is no requirement to understand determination in this way. For example, when we say that a calculator 'determines' the correct answer to a sum, we certainly do not suggest that the correctness of the answer is grounded by the contents of the calculator. Rather, we suggest just that the calculator gets the answer right. If we understand determination in this way, then we obtain a weaker version of cognitivism, as follows.

[5] See my comments in §1 about why we should not reject the neo-Davidsonian account in response to the liar paradox.

[6] See also e.g. Segal 1999: 56, and Borg 2012: 55.

Material cognitivism: the cognised semantic theory is correct.

So, to be explicit, metaphysical cognitivism implies material cognitivism, but the converse is not true. We shall find the distinction useful from time to time in what follows – but I shall use "cognitivism" when the distinction is not important.

Both metaphysical and material cognitivism, as just characterised, imply that the cognised semantic theory is correct. I have formulated the view in this way as, to my mind at least, it best captures the view developed by Borg and Larson and Segal. But it is worth noting that one could in principle understand *determination* differently: one could maintain that the cognitive mechanism that underpins semantic competence determines linguistic meaning, in the sense that the cognised semantic theory *T* fixes what expressions and sentences mean, but hold that *T* does not determine meaning directly, in the sense that facts about meaning cannot be directly read off *T*. This sort of view need not be committed to the cognised semantic theory being correct. Thus, for example, in response to the liar paradox, the cognitivist may attempt to restrict which of the cognised T-sentences correctly specify the truth conditions of the relevant sentences. I shall consider and criticise such views in §4.2. Alternatively, the cognitivist might deny that facts about meaning can be directly read off the cognised semantic theory because she denies that linguistic meaning is truth-conditional. Perhaps, for example, she could argue that linguistic meaning is not representational, or that it requires substantial input from context to obtain truth conditions.[7] It is an interesting and important question whether the considerations I raise in the present paper extend to such views, but not one I shall consider here. For the moment I merely note that the problem with such an approach is that we are assuming the neo-Davidsonian account of semantic competence; and the view that meaning is determined by the cognition of a (truth-conditional) semantic theory seems in tension with the claim that meaning is not truth-conditional. First, the view would be rather incongruous: our semantic competence would involve the assignment of truth conditions to sentences, even though the meaning thereby determined would not be truth-conditional. Second, it is simply unclear how the (sometimes incorrect) assignment of truth conditions to sentences made by the cognised theory could determine such non-truth-conditional meanings. Once the cognitive mechanism has assigned a truth condition to a sentence, it is unclear how to get back something *other than* a truth condition. For these reasons, I shall assume throughout this paper that sentence meaning is truth-conditional.[8]

There is a second strategy for denying that the cognised semantic theory needs to be correct. Consider how, on some readings of Davidson, a (truth-conditional) semantic theory is intended to do

[7] See e.g. Chomsky 2000 and Pietroski 2003 for the first possibility and Carston 2008 for the second.

[8] Although, see my comments in §4.2 about 'thin-meaning'. For an extended defence of the claim that meaning is truth-conditional, see Borg 2012: 73–111.

duty for intensional linguistic notions by, in effect, doing their explanatory work.[9] Perhaps one could construe the cognitivist account of meaning along similar lines – the aim being to use facts about the cognitive mechanism that underpins semantic competence to undertake the theoretical work done by traditional theories of meaning. On such a view, it may not matter whether the cognised theory is true or false. Now, I am sceptical that such a view captures the claim that the cognitive mechanism in question *determines meaning*; if anything, it rather suggests that, contrary to what Borg and Larson and Segal seem to think, meaning is explanatorily superfluous and might be eliminated. But, nonetheless, it certainly appears to be a view in the same ballpark as cognitivism. For this reason, I shall consider (in §4.2) a view along these lines that has been put defended by Douglas Patterson (2009). I take it that my comments about Patterson's account will carry over to other views along these lines.[10] In the meantime, however, I assume that the cognitivist is committed to linguistic expressions being meaningful, in the sense that words have referents, predicates have extensions, and sentences have truth conditions.

3. The liar paradox and the inconsistency hypothesis

Pre-reflectively, we might expect the truth condition for λ – where λ is the sentence "λ is not true" – to be represented by (T_λ), reprinted here for ease of reference:

(T_λ) "λ is not true" is true if, and only if, λ is not true.

However, (T_λ) is inconsistent (by substitution of co-referring terms and by considering cases), and should presumably thus be rejected.[11]

Consider now what the inconsistency of (T_λ) tells us about correct semantic theories. As (T_λ) is inconsistent, it cannot accurately represent the truth condition actually possessed by λ (if, indeed, λ possesses any truth condition at all). So (T_λ) cannot be yielded by any *correct* semantic theory, as correct semantic theories are *true*. Can a similar point be made with regard to *cognised* semantic theories? No. Whereas *correct* semantic theories need to be true, a *cognised* semantic theory needs just to play the relevant role in an empirical story about a speaker's cognitive make-up. And there is no *a priori* reason to suppose that the relevant role must be played by a *consistent* semantic theory.[12]

[9] See e.g. Ludwig 2002, Lepore and Ludwig 2005, and Badici and Ludwig 2007.

[10] See e.g. Gross 2006.

[11] For now, I put aside various attempts – such as, notably, Field 2008, and dialetheism – to save such T-sentences through the adoption of a non-classical logic.

[12] For more details, see Pinder forthcoming: §2. Cf. Gross 2006: 59-68.

So, (T_λ) *can* be yielded by a cognised semantic theory. And, as we have seen, contrary to cognitivism, such a semantic theory would *not* be correct.

I shall shortly raise an argument for the hypothesis that, in fact, cognised semantic theories *do* yield such T-sentences as (T_λ). More precisely, I shall raise an argument for the inconsistency hypothesis, as follows.

> *The inconsistency hypothesis*: the cognised semantic theory is inconsistent, as it yields an inconsistent T-sentence (such as (T_λ)) for a liar sentence (such as λ).[13,14]

If the inconsistency hypothesis is true, then cognitivism – at least as characterised above – is false. I consider a number of lines of response to the difficulty in the following section.

The argument proceeds by a consideration of a variety of linguistic data. How can linguistic data be used to draw conclusions about the cognised semantic theory? In general, a speaker lacks epistemic access to the inner workings of the semantic module. But its *outputs* are supposedly the *literal meanings* of sentences. It is for this reason that, for example, Borg states that

> [g]iven the right context (i.e. one where subjects are asked to reflect on 'literal' or 'strict' meaning) ordinary interlocutors can and do grasp exactly the kinds of contents [the cognitivist account] predicts. We are all used to the sarcastic or uncooperative response to something we have said which picks up not on obvious features of the conveyed content but instead insists on the minimal, literal interpretation of our words. (2012: 14-15)

Similarly, Larson and Segal tell us that

> the notion of the literal meaning of an expression is replaced by that of the semantic properties ascribed to the expression by the [cognised semantic theory]. Thus, when a speaker utters an indicative sentence and intends to speak literally, the meaning the speaker intends to convey will be the truth conditions his or her [cognised semantic theory] ascribes to the sentence. The story is similar for when a hearer hears a sentence. (1995: 53)

[13] Douglas Patterson (2009) makes a similar hypothesis. He does not, however, present explicit arguments or evidence for the hypothesis, but rather offers it as a solution to the liar paradox. I shall consider his view as a possible line of response for the cognitivist in §4.2.

[14] In saying the cognised theory is *inconsistent* I do not insist that the theory yields an explicit contradiction; I allow that an additional true premise (such as: λ = "λ is not true") might also be required.

The idea, then, is that the T-sentences of the cognised semantic are expected to correspond reasonably well to the intuitive conception of literal meaning. As such, from the current perspective, we might hope to use linguistic data to formulate direct hypotheses about which T-sentences are yielded by the cognised semantic theory. Now, a full discussion of the linguistic data is beyond the scope of this paper; but we can nonetheless build at least a *prima facie* case in support of the inconsistency hypothesis. Consider the following four pieces of linguistic data.

First, consider the following, intuitively valid inference.

(1) λ is not true.
(2) "Grass is blue" is not true.
(3) The liar sentence and "Grass is blue" are distinct sentences.

Therefore:

(4) There are at least two sentences that are not true.

The intuitive validity of the inference from (1)–(3) to (4) rests on the fact that it is apparently an instance of the valid argument form:

(1′) *a* is not *F*.
(2′) *b* is not *F*.
(3′) *a* and *b* are distinct *G*s.

Therefore:

(4′) There are at least two *G*s that are not *F*.

If this is right, then, on its natural reading, it seems that premise (1) has truth-conditional content of the form of (1′) – and thus, plausibly, content of the form of *that λ is not true*.

Second, liar sentences can be embedded within logical operators to yield intuitively true sentences. To set up the example, note that we can characterise the 'revenge problem' as a problem facing potential solutions to the liar paradox that do *not* imply that λ is true: the problem is that such solutions lead naturally to the meta-theoretic assertion of "λ is not true", seemingly implying that "λ is not true" is true after all. Consider now the following.

(5) If λ is not true, then an adequate solution to the liar paradox will have to resolve the 'revenge problem'.

Sentence (5) is, I think, intuitively true: a *prima facie* 'revenge problem' will arise for any solution that, as apparently expressed by the antecedent, deems λ untrue. As such, on the intuitive reading of (5), it seems that the antecedent of (5) has truth-conditional content *that λ is not true*.

Third, it seems that, when liar sentences are uttered, there is non-cancellable content. Suppose, for example, that Sara is teaching a course on the paradoxes and has written just the following on the whiteboard:

The sentence on the whiteboard is not true.

(Note that this is obtained by taking "λ" to be an abbreviation of "the sentence on the whiteboard".) Suppose that Sara says that, in her opinion, the sentence on the whiteboard is not true; this results in a student asking whether the sentence on the whiteboard needs to be learnt for the exam. Suppose that Sara responds by uttering (6).

(6) The sentence on the whiteboard is not true.

Plausibly, by uttering (6) in this context, Sara conveys that the sentence need not be learnt for the exam. Suppose now that she continues by uttering one of the following.

(7) … but you still need to learn it for the exam.
(8) … and it's not the case that the sentence on the whiteboard is not true.

Intuitively, Sara would not contradict her utterance of (6) in uttering (7), but she would contradict her utterance of (6) in uttering (8). This provides initial evidence that Sara's utterance of the liar sentence has non-cancellable content *that λ is not true* – and, more generally, perhaps, that utterances of "λ is not true" have non-cancellable content *that λ is not true*. This constitutes evidence that "λ is not true" has literal truth conditional content *that λ is not true*.

Fourth, there is evidence to suggest that liar sentences are *not* context sensitive.[15] For example, suppose that, at *t*, Mike utters the following.

(9) What Mike says at *t* is not true.

And suppose that, a little later, John utters (10).

(10) What Mike said at *t* was not true.

[15] See Cappelen and Lepore 2005 and Cappelen and Hawthorne 2009 respectively for recent defences of the tests I employ below. I should note that Borg (2012: 31-32) is critical of using such tests for establishing context sensitivity; failing the tests, however, plausibly remains good evidence for the absence of context sensitivity.

Then, bypassing any complications involving tense, Mike's utterance of (9) and John's utterance of (10) can intuitively be reported correctly (in our context) as follows.

(11) Mike and John said that what Mike said at *t* was not true.
(12) Mike and John agree that what Mike said at *t* was not true.

Given the robustness of the intuition that reports such as (11) and (12) are correct (the reader is invited to test further cases), this is initial evidence that, on the natural readings of such liar sentences, there is no context sensitivity.

The above data constitutes initial evidence that speakers are disposed to assign to λ the literal, context-insensitive, truth-conditional content *that λ is not true*. And, in the present context, it constitutes initial evidence that the cognised semantic theory yields the T-sentence (T_λ) – and that the inconsistency hypothesis is thereby correct. The data provided here is certainly not conclusive: our linguistic intuitions are underpinned by a variety of interlinked cognitive mechanisms, and it is far from being clear cut precisely what a particular set of data tells us about those mechanisms. This being said, however, it is *very natural* to interpret the above data as *supporting* the inconsistency hypothesis – and insofar as this is case, they provide some reason to think – albeit tentatively – that the inconsistency hypothesis is correct.

That, then, is the difficulty posed to the cognitivist account of meaning by the liar paradox. Cognitivism states that the cognised semantic theory is correct; but there is reason to think that, as a result of the liar paradox, the cognised semantic theory is inconsistent. As correctness implies truth, the inconsistency of the cognised semantic theory directly contradicts cognitivism.

4. Lines of response

Let us now turn to discuss a number of lines that the cognitivist might take in response to the difficulty posed by the liar paradox. To help keep the dialectic clear, the lines of response are divided into two main groups, according to whether they deny the inconsistency hypothesis, or deny that the truth of the inconsistency hypothesis would be a problem for cognitivism.

4.1 "The inconsistency hypothesis is false"

In this subsection, I discuss three lines of response. The first is that the inconsistency hypothesis must be false for the neo-Davidsonian account of semantic competence to make sense. The second is that, the argument in the previous section notwithstanding, the cognised semantic theory is consistent. In particular, I shall consider the hypothesis that, in line with a well-known solution to the liar paradox offered by Tyler Burge (1979), the natural language truth predicate is an indexical. The third line of

response I consider is more radical: that the cognised semantic theory may indeed yield a T-sentence like (T_λ), but revisions to logic and the semantics of conditionals block the derivation of a contradiction.

First, then, the cognitivist might initially be tempted to argue that the inconsistency hypothesis *must* be false: the neo-Davidsonian account of semantic competence, she might claim, *requires* the cognised semantic theory to be consistent. Perhaps, so goes the thought, if an individual were to cognise an inconsistent semantic theory, then her semantic module would have to implement a 'faulty program', leading to the failure of the semantic module to operate effectively. Arguments along these lines, however, are unlikely to succeed.

An account of semantic competence must explain how a speaker's cognitive make-up is such that she can interpret the words, complex expressions and sentences of her language. The neo-Davidsonian account of semantic competence can do this straightforwardly *regardless* of the consistency of the cognised semantic theory. To see why, let us first introduce the notion of a *canonical derivation procedure*.[16] (For ease of exposition, here, I focus just on sentences.) A canonical derivation procedure is a recursive algorithm with which a semantic theory for a language, L, is equipped. The algorithm tells us which inferential steps are taken in deriving the T-sentence for each sentence of L from the axioms for the constituents of that sentence and their mode of composition. We might then make the following claim about *cognition*. A speaker *cognises* a particular semantic theory for L, T_L, when: her semantic module takes, as input, representations of sentences of L; the module implements the canonical derivation procedure of T_L, processing inputs to yield, as outputs, T-sentences of input sentences.

Now, an inconsistent semantic theory can have a canonical derivation procedure in precisely the same way as a consistent semantic theory: the procedure, given an input (representation of a) sentence, recursively yields an interpretation for that sentence. For any given line in a particular canonical derivation, the procedure provides a unique next line in the derivation – regardless of the truth or consistency of any preceding lines in the derivation. That one can classically derive anything from a contradiction is irrelevant; only canonically derivable theorems of the semantic theory are relevant to interpretation, and only canonically derivable theorems represent outputs of the semantic module. A semantic theory that yields (T_λ), and is thereby inconsistent, may nonetheless have a perfectly coherent canonical derivation procedure. Cognition of an inconsistent, semantic theory may consequently underpin semantic competence. As far as the neo-Davidsonian account of semantic competence is concerned, the inconsistency hypothesis *might* be true.

It is not the case, then, that the cognised semantic theory *must* be consistent. The second line of response that I shall consider, however, says that the cognised semantic theory, regardless of the above, *is* consistent. To push this line, the cognitivist would have to do two things: first, she would

[16] See e.g. Larson and Segal 1995: 34–37.

have to cast doubt on the argument for the inconsistency hypothesis presented in §3; second, she would have to present contrary data – or a contrary interpretation of the same data – to support the conclusion that cognised semantic theory is consistent.

Let us fix the idea with a concrete example (although, to be clear, the difficulties I shall subsequently raise do generalise). Suppose, then, that the cognitivist proceeds by seeking evidence that the natural language truth predicate is in fact an *indexical*, as proposed by Burge (1979).[17] She might then argue that the tests for context sensitivity employed in §3 failed to indicate this indexicality because the relevant context parameter has the same value in each of the contexts of utterance for (9)–(12). Then she could conclude that the T-sentence for λ yielded by the cognised semantic theory is:

(T_λ') "λ is not true" (as uttered in *c*) is TRUE if, and only if, λ is not true-in-*c*

where the capitalised truth predicate is given a context-*in*sensitive reading. So long as there is no value of *c* for which, in *c*, λ falls in the extension of "true-in-*c*", contradiction is avoided.

I am not sure how likely it is that the cognitivist will find strong evidence to support the hypothesis that the cognised semantic theory yields (T_λ'). There is certainly no obvious reason why the cognised semantic theory would treat the natural language truth predicate as context sensitive: the expressive function of the truth predicate appears not to require it to be context sensitive. What is the expressive function of the truth predicate? Arguably, it is to facilitate blind assertion ("whatever your mother just told you, it's true"), infinite generalisation ("everything the Oracle says is true"), agreement ("yes, that's true"), anaphora ("Cameron is the prime minister. True, but …"), etc.[18] All of these functions, however, are most simply achieved by allowing sentences of the form "…" and "'…' is true" to be straightforwardly intersubstitutable, *salva veritate*, in transparent contexts – which would indicate that the natural language truth predicate is context *in*sensitive. And, on the assumption that we would expect our cognitive mechanisms to tend towards a minimisation of spurious inefficiency, we should thus expect the cognised semantic theory to treat the truth predicate as context insensitive.

But suppose that, nonetheless, the cognitivist *does* find evidence that the cognised semantic theory yields (T_λ'). Even then, it seems that it *very easily could have been the case* that we had cognised a semantic theory that yields (T_λ). Our linguistic behaviour need not have been different in

[17] There are other views in the literature according to which the liar paradox arises due to context sensitivity, but that do not treat the truth predicate as an indexical. For reasons of space, I cannot discuss them here. See e.g. Glanzberg 2001, 2004, and Parsons 1974.

[18] Cf. the literature on deflationary theories of truth, e.g. Horwich 2010. (Note that one can accept the above comments without being a deflationist.)

any relevant respect, and there need have been no substantial difference between the the cognitive mechanisms underlying that behaviour; but there could have been a small difference in the details of our neurological wiring, so to speak, such that the cognised semantic theory had yielded (T_λ) and such that our pragmatic mechanisms had been slightly adjusted to compensate for the difference. There would then be two worlds – w_1 and w_2, say – such that: the linguistic behaviour of the people in each world would be the same in the relevant respects;[19] the kind of cognitive mechanisms that underpin the linguistic behaviour would be the same in each world; and the speakers in w_1 just happen to cognise a consistent semantic theory, whereas the speakers in w_2 just happen to cognise an inconsistent semantic theory. While one may claim that cognitivism is true in w_1, one may not claim that cognitivism is true in w_2.[20] This, however, is a problem.

Let me explain. Take the metaphysical variant of cognitivism first. Suppose that the metaphysical cognitivist claims that, in w_1, the cognised semantic theory, in virtue of its being cognised, is correct. What can she say about linguistic meaning in w_2? Given that the linguistic behaviour of people in w_1 and w_2 is in the relevant respects the same, and given that the linguistic behaviour is underpinned by just the same kind of cognitive mechanisms, we would not like to conclude that linguistic expressions in w_2 are meaningless. But, as the metaphysical cognitivist's metaphysical story is only available in w_1, she would thus be committed to there being a *different* metaphysical story in w_2. This, however, would be a bizarre situation: speakers' linguistic behaviour, the kind of mechanisms that underpin that behaviour, the external environment, the laws of nature, etc., may be the same in w_1 as in w_2, but the fundamental metaphysical picture of meaning in the two worlds would be *different*. But what could justify this difference? The metaphysical cognitivist would owe us an explanation, and it is not clear how one would be given.

Consider now material cognitivism.[21] It might be claimed that material cognitivism is true in w_1, but false in w_2. Moreover, the material cognitivist may grant that a single (non-cognitivist) metaphysical story may be told about meaning in *both* w_1 and w_2. However, now we would like to ask the material cognitivist: *why* is the metaphysics of meaning such that, in w_1 but not w_2, the cognitive mechanisms that underpin semantic competence *track* whatever facts there are about meaning? The problem here is that all of the factors that appear to be relevant to the answer are ostensibly the same in w_1 as in w_2: the linguistic behaviour is underpinned by precisely the same kind of cognitive mechanism in both worlds, and *ex hypothesi* the metaphysical story about meaning is the same in both

[19] What are the relevant respects? I mean that speakers in w_1 and w_2 would not notice anything unusual in the linguistic behaviour of the speakers in w_2 and w_1 respectively.

[20] I consider lines of response that *deny* that the truth of the inconsistency hypothesis is a problem for cognitivism in §4.2.

[21] Additional concerns are raised in Pinder forthcoming: §3.

worlds. So what could justify material cognitivism in one world but not the other? The material cognitivist would owe us an explanation but, as before, it is not clear how one would be given.

Let us, then, turn to the third line of response that I shall consider. The cognitivist might look to adopt a solution to the liar paradox that endorses a T-sentence:

(T_λ'') "λ is not true" is true $\leftrightarrow$ λ is not true,

but involves a revision of logic and the introduction of a non-standard conditional (whose associated biconditional I represent with "$\leftrightarrow$") to block the subsequent derivation of a contradiction.[22] The idea for the cognitivist would be roughly as follows: the cognised semantic theory yields the T-sentence (T_λ'') for λ; the logic and conditional are such that the derivation of an explicit contradiction from (T_λ'') is blocked; thus, even given the premise that λ = "λ is not true", the cognised semantic theory is consistent and may coherently be deemed correct.

Whatever merits such a theory of truth has, the cognitivist cannot adopt it as straightforwardly as she might hope. The cognitivist would have to argue that the output of the semantic module, given (a representation of) λ as input, is (T_λ'') as opposed to (T_λ). Notice that this is not obviously a substantial change of commitment in terms of the *meaning* of λ: both T-sentences might be said to characterise λ as having the truth-condition *that λ is not true*. It is, in the first instance, the logic and the conditional of the *meta*language that have been changed. However, this *is* a substantial commitment: the semantic theory that yields (T_λ'') is a *different* semantic theory to that which yields (T_λ). And, as Larson and Segal tell us,

> […] what semantic theory a person knows is a question for science, a matter of determinate empirical fact. This means that even if we discover a number of interpretive T theories, all successfully predicting the various kinds of speaker judgments discussed above, at most one of these can be the theory actually internalized by the speaker. (1995: 56–7)

The challenge for the cognitivist, then, is to explain why we should think that the relevant output of the semantic module is (T_λ'') as opposed to (T_λ).

How the cognitivist might attempt to meet this challenge is an interesting question that I cannot discuss in any detail here. But let me express a general concern that I have about the prospects for meeting the challenge. Arguably the most developed solution to the liar paradox along the lines

[22] Field's (2008) paracomplete theory of truth is an important and highly sophisticated example: it involves the adoption of a third truth value, and the semantics for its conditional are given by a transfinitely-iterated revision procedure which need not concern us here.

discussed here is that of Field (2008). Consider now the following four points. First, Field's theory or truth is significantly more sophisticated, subtle and intricate than a straightforwardly inconsistent semantic theory that yields (T_λ). Second, a principal strength of Field's solution is that it validates the intersubstitutability of "…" and "'…' is true", and by the logical strength of the resulting system (cf. McGee 2010: 422f). Third, all else being equal, and given the high costs of cognitive resources, we would expect there to be a preference for the cognised semantic theory to be simple, rather than sophisticated, subtle and intricate. Fourth, neither the valid intersubstitutability of "…" and "'…' is true", nor the logical strength of Field's system, are even relevant to the question of which semantic theory is cognised: the function of the semantic module is to interpret the words, complex expressions and sentences of the speaker's language, and, given the availability of canonical derivation procedures for inconsistent semantic theories, issues of validity and logical strength are beside the point. The upshot is that, even if the cognitivist explains *how* the relevant output of the semantic module is (T_λ'') as opposed to (T_λ), there is unlikely to be any reason to think that the relevant output *actually is* (T_λ'') rather than (T_λ). The incorporation into the cognised semantic module of any such (non-classical) solution to the liar paradox constitutes a substantial empirical hypothesis that, it seems, there would be little reason to endorse.

We now turn to responses that seek to deny that the truth of the inconsistency hypothesis would be a problem for cognitivism.

4.2 "The truth of the inconsistency hypothesis would not be a problem"

Suppose that the inconsistency hypothesis is true: the cognised semantic theory yields (T_λ), from which a contradiction can be derived. Given this supposition, how might the cognitivist respond? In this subsection, I shall consider three options: the inconsistency theories put forward by Douglas Patterson (2009, 2012) and Matti Eklund (2002, 2005), and then the adoption of a broadly Kripkean (1975) approach to the liar paradox.

Before I begin, however, let me very briefly mention dialetheism.[23] The cognitivist may accept that, despite being inconsistent, (T_λ) is in fact true. On this view, it follows that both λ is true and λ is not true; triviality may be avoided by commitment to a nonclassical, paraconsistent logic that deems *ex falso quodlibet* invalid. My main concern about this line of response is the independent coherence and plausibility of dialetheism – a matter that has been discussed at length elsewhere, and that I shall not discuss here.[24] But I note that, if the cognitivist is forced to adopt dialetheism, this would constitute a significant increase in the logical and metaphysical baggage that accompanies cognitivism. In what follows, I put dialetheism aside.

[23] See e.g. Priest 2006.

[24] See e.g. the papers in Priest, Beall and Armour-Garb 2005.

So let us consider so-called "inconsistency theories". Very roughly, the inconsistency theorist claims in response to the liar paradox that our *understanding* of natural language is, in one way or another, inconsistent. I will focus first on Douglas Patterson's (2009, 2012) inconsistency theory, and then on that of Matti Eklund (2002, 2005).[25] Patterson's inconsistency theory involves a commitment to the neo-Davidsonian account of semantic competence and, in essence, our inconsistency hypothesis. He claims that

> understanding a natural language is sharing with other speakers cognition of a truth conditional semantic theory for that language which the paradoxes show to be logically false. (2009: 413)

He draws the somewhat surprising conclusion that *all* of the sentences of natural language lack truth conditions and are meaningless. The idea is that we should make do with just the neo-Davidsonian account of semantic competence, and attempt to explain the relevant linguistic phenomena without recourse to linguistic meaning.

Now, it should be understood that adopting Patterson's inconsistency theory is tantamount to *denying* cognitivism. Patterson accepts the neo-Davidsonian account of semantic competence and *denies* that the semantic module (or anything else) determines meaning. For this reason, to claim that one should adopt Patterson's inconsistency theory in response to the liar paradox would be to claim (in part) that cognitivism should be *rejected* in response to the liar paradox. A cognitivist cannot adopt Patterson's inconsistency theory without thereby ceasing to be a cognitivist.

Nonetheless, Patterson's inconsistency theory retains something of the spirit of cognitivism. Both Patterson and the cognitivist take the neo-Davidsonian account of semantic competence to play a principal role in explanations of linguistic phenomena: for the cognitivist, the neo-Davidsonian account of semantic competence gives us the *correct* semantic theory, which can then be deployed to explain various linguistic data, the learnability of language, etc.; for Patterson, such explanations appeal to the neo-Davidsonian account of semantic competence directly. Perhaps, then, the adoption of Patterson's inconsistency theory would be a concession that, in light of the liar paradox, the cognitivist is willing to make.

I have two points of caution. First, it is far from clear that the neo-Davidsonian account of semantic competence *can* do the relevant the explanatory work.[26] That is, it is far from clear that Patterson can explain all of the relevant linguistic phenomena without recourse to linguistic meaning.

[25] I shall not discuss Kevin Scharp's (2013a,b) inconsistency theory, which is perhaps the most sophisticated in the literature: it seems that the cognitivist may not adopt Scharp's view as Scharp is required to explicitly deny that a semantic theory (as he envisages it) might have cognitive reality. See his 2013b: 459f.

[26] Matti Eklund raises a similar worry in his 2007: 571–572.

For example, it is plausibly a linguistic phenomenon that, in English, one does not make a mistake in drawing inferences according to some rules:

(P) *X* and *Y*
Therefore:
(C) *X*,

while one *does* make a mistake in drawing inferences according to others:

(P1) If *X*, then *Y*
(P2) *Y*
Therefore:
(C) *X*.

There is a natural explanation of this phenomenon: some rules, including the first but not the second, are *valid*. However, insofar as we think that validity is a matter of truth preservation, this explanation presupposes that the sentences in question have truth conditions and meanings, and thus appears not to be available to Patterson. If the cognitivist is to follow this line of response, she should show how one can explain such phenomena *without* an account of meaning.

Second, it is far from clear that the cognitivist should adopt Patterson's inconsistency theory *as a response to the liar paradox*. To see why, let us first distinguish between two questions that we might ask:

(Q1) Is the cognised semantic theory consistent?
(Q2) Does the neo-Davidsonian account of semantic theory require supplementation from an account of meaning in order to explain all of the linguistic phenomena?[27]

We are presently assuming that the answer to (Q1) is "no". So we can coarsely distinguish between Patterson's inconsistency theory and cognitivism by their answers to (Q2). Patterson, it is clear, answers "no" to (Q2). The cognitivist, however, in seeking to claim that the cognised semantic theory is correct, is implicitly committed to answering "yes" to (Q2): if all linguistic phenomena can be explained without appeal to linguistic meaning, then it is difficult to see what motivation for cognitivism, or any other account of meaning, there could be. But the difficulty posed by the liar paradox and the answer to (Q2) are *independent*. One should not *change* their answer to (Q2) *as a*

[27] This question simplifies issues a little; I implicitly assume the explanations in question may appeal to other empirical claims, so long as those claims are construed so as *not* to imply anything about linguistic meaning.

response to the liar paradox. The explanatory power of the neo-Davidsonian account of semantic competence does not turn upon the consistency of the cognised semantic theory. Either the neo-Davidsonian account requires supplementation from an account of meaning or it does not: if it does, then Patterson's inconsistency theory is incorrect and should not be adopted; if it does not, then cognitivism is unmotivated and should be rejected for reasons independent of the liar paradox. Either way, it seems, Patterson's inconsistency theory does not provide the cognitivist with a viable line of response to the difficulty posed by the liar paradox.

Let us, then, turn to Eklund's inconsistency theory. Eklund suggests that the meaning of each term of a language consists of so-called "meaning-constitutive principles". For a given term, possessing dispositions to accept the meaning-constitutive principles for that term is taken to be necessary and sufficient for semantic competence with it. Call such dispositions "competence dispositions". So, for example, each instance of the principle:

"'…' is true" and "…" are inter-deducible

where "…" is replaced by a sentence of English, may be a meaning-constitutive principle for the English truth predicate. In particular, for Eklund, the following instance is a meaning-constitutive principle for the English truth predicate:

(13) "'λ is not true' is true" and "λ is not true" are inter-deducible.

Eklund thus claims that semantic competence with the truth predicate involves a disposition to accept (13). It does not matter for this story that some competence dispositions may be overridden (by, say, one's knowledge that (13) leads straightforwardly to a contradiction). Semantic competence does not require one *to accept* (13) when faced with it: competence dispositions may be masked.

Eklund tells us that the semantic values of terms are fixed roughly as follows.

> When the conditions laid down by the meaning-constitutive principles can be satisfied, the semantic values are what satisfy them. When they cannot be, the semantic values are what come closest to satisfying them, provided any assignment of semantic values comes sufficiently close. (2005: 43)

Here, which semantic values come *closest* to satisfying the meaning-constitutive principles is not just a matter of how many meaning-constitutive principles come out true; some of the principles may be more important than others, depending on, say, how deeply they are entrenched or how often the corresponding disposition is manifested. For more details, see Eklund 2002: 263–266.

The cognitivist might adopt Eklund's inconsistency theory by stipulating that the cognised semantic theory fixes the meaning-constitutive principles for the terms of the speaker's language. The natural thought here is to identify the meaning-constitutive principles with the canonical theorems of the semantic theory. Then, the semantic values of terms of a language would be fixed as whatever assignment comes closest – in Eklund's sense – to making the canonical theorems of the semantic theory come out true.

I have three brief concerns about adopting Eklund's strategy in this way. First, it seems likely to yield quite significant semantic indeterminacy. It is well-known that semantic theories of the form we are discussing require more than *truth* in order to adequately pin down the meaning of terms. (There are difficulties, for example, distinguishing between the extensionally equivalent terms "renate" and "chordate"; and what will be the semantic value of abstract terms such as "justice"?) As the issue is well-known, I shall not expand upon it here.[28]

Second, it becomes unclear on this story what exactly is the point of positing linguistic meaning. For the cognitivist adopting Eklund's inconsistency theory: the meaning of each term will likely be construed as consisting of the T-sentences in which the term is mentioned; and the semantic values of terms of the language would be fixed as whatever comes closest to making the relevant T-sentences true. But it is unclear that the meaning, so construed, has any particular role to play in how we use language: it is the interpretation assigned by the cognised semantic theory, as opposed to whatever assignment comes closest to making the T-sentences true, which governs our linguistic behaviour. Moreover, it is not clear that Eklund's notion of meaning has any normative import: for Eklund, if we change our competence dispositions then we simply cease to have semantic competence with the relevant terms. It is unclear what theoretical role Eklund's notion of meaning would play.

Third, it is unclear that the cognitivist even *can* adopt Eklund's inconsistency theory. Eklund relies on (13) being a meaning-constitutive principle. But principles such as (13) concern putative logical relations between sentences of English, whereas the canonical theorems of the cognised semantic theory (and T-sentences in particular) are most naturally construed as relating expressions of English to the world. To put the point more simply: (13) names *two* English sentences, whereas T-sentences such as (T_λ) name *one* English sentence. The cognitivist should explain how (13) comes out as meaning-constitutive.

Perhaps the cognitivist can ameliorate these worries. But, at the very least, she would need to say a great deal more in order to adopt Eklund's inconsistency theory. For now, however, let us turn to the third and final line of response: adopting a broadly Kripkean approach to the liar paradox.

In its simple form, cognitivism says that the cognised semantic theory is correct. But, perhaps, in light of the liar paradox, it is in fact a *subtheory* that is correct. There may be a class of T-sentences yielded by the cognised semantic theory that the cognitivist can isolate as *pathological* and then

[28] See e.g. Davidson 1976, 1977.

reject. A natural way to follow this line is to adopt a broadly Kripkean approach to the liar paradox.[29] The approach involves giving a recursive, partial definition of truth for a language whose pathological – or, better, *ungrounded* – sentences are deemed *not* to have truth values.[30] At a very intuitive level, we can understand the ungrounded sentences as those that do not connect up with the world in the right way (whatever that is) to obtain a truth value. Crucially, on all formal accounts of groundedness, the liar sentence is an example of an ungrounded sentence.

The picture would be roughly as follows. First, when a sentence is grounded, its truth condition is that assigned by the cognised semantic theory. Second, when a sentence is ungrounded, it lacks a truth value and thus, presumably, it lacks a truth condition. However, the cognised semantic theory nonetheless yields a T-sentence for that sentence: consequently the T-sentence is incorrect (and the cognised semantic theory taken as a whole is incorrect). Third, in order to make sense of the compositionality of language, we would like to retain the axioms of the cognised semantic theory. However, we cannot simply deem the axioms correct, as we can derive from them the incorrect T-sentences. Instead, the cognitivist might restrict the range of quantification in suitable axioms, deeming the restricted axiom set correct. I shall not discuss here how the cognitivist should perform the restriction, but assume for the sake of argument that it can be done.

There are, once again, difficulties facing this line of response.[31] Consider first just metaphysical cognitivism. In taking this line, it would be natural for the metaphysical cognitivist to claim that the semantic module metaphysically determines the truth conditions of grounded sentences. However, this presupposes that there is *already* an established division between the grounded and ungrounded sentences. But groundedness, it seems, is to be determined in part by meaning and in part by the world. So, if "the sentence on the whiteboard is not true" is ungrounded, it is in part because it *means* that the sentence on the whiteboard is not true, and in part because the *world* is such that the (only) sentence on the whiteboard *is* "the sentence on the whiteboard is not true". If this is right, then there must be a notion of meaning that is *metaphysically prior* to the truth conditions assigned by the semantic module. Let us call this *thin-meaning*.

Now, I shall not say anything about what thin-meaning might amount to – this is a task for the metaphysical cognitivist adopting this line of response. But I note that, in order to maintain that the semantic module metaphysically determines meaning, the metaphysical cognitivist must explain how the semantic module metaphysically determines thin-meaning. This is unlikely to be an easy task:

[29] Kripke's theory of truth is first introduced in his 1975. See Leitgeb 2005 for a similar, related view and discussion.

[30] Some variants of the Kripkean approach to the liar paradox, such as Maudlin's (2004), treat ungrounded sentences as possessing a third truth value, rather than as lacking a truth value. This issue need not concern us here.

[31] There are additional difficulties, not discussed here, which I raise in Pinder forthcoming: §4.

semantic theories of the form we are considering assign to sentences *only* truth-conditional content. The metaphysical cognitivist who adopts this line of response would have to spell out a principled way to extract thin-meaning – whatever she says that it is – from a cognised semantic theory that only assigns truth-conditional content to sentences.

There is a more general version of the worry, which faces both metaphysical and material cognitivism. Which solution to the liar paradox is the *correct* solution (if indeed there is one) is, in part, a matter of linguistic meaning. We have considered solutions that deem the truth predicate to be context sensitive, that employ non-standard conditionals, and that treat meaning as (in some way) encoding inconsistency. On the Kripkean approach to the liar paradox, substantial hypotheses are offered about the extension of the truth predicate, the limited role of truth-conditional content, and a presumably semantic property of *groundedness* possessed by some sentences and not others. Ultimately, however, the cognitivist claims that linguistic meaning is determined by the cognitive mechanism that underpins semantic competence. But, on both the metaphysical and material varieties, we lack a clear picture of how those cognitive mechanisms determine the particular meanings that terms must have for a particular solution to the liar paradox to be correct. So, if the cognitivist claims that ungrounded sentences lack the truth-conditional content assigned to them by the semantic module, then this is a decision that *she* has made. It is a decision about the meaning of sentences which, as far as we can tell, is simply not reflected by the cognitive mechanism that underpins semantic competence. As such, on this line of response, linguistic meaning seems to outstrip the canonical theorems of the cognised semantic theory.

The upshot is this. If the cognitivist adopts the Kripkean approach to the liar paradox, then: some of the T-sentences yielded by the cognised semantic theory are incorrect, and there are aspects of linguistic meaning that are not reflected in the cognised semantic theory. Being cognised would thus be neither necessary, nor sufficient, for linguistic meaning.

To adopt the Kripkean approach to liar paradox, then, the cognitivist needs to say a great deal more. First, she would need to explain what role the semantic module plays in the metaphysical determination of linguistic meaning: does the semantic module metaphysically determine truth conditional content, and/or thin-meaning? If so, how? If not, what does? Second, she should provide an account of the epistemic relation between the so-determined linguistic meaning and semantic module; this may not be trivial because, as noted, there may be aspects of linguistic meaning that outstrip the cognised semantic theory. Third, she should explain why the Kripkean approach to the liar paradox is the *correct* approach. I make no claim that the cognitivist cannot fill in the details – but the details would most certainly need to be given.

5. Concluding remarks

The liar paradox poses a serious difficulty to the cognitivist account of meaning. There is evidence to suggest that, due to the paradox, the cognised semantic theory is inconsistent. This contradicts, on its natural construal, the cognitivist account of meaning. I have discussed a number of lines of response to the difficulty. Although they have not all been ruled out by our discussion, it is clear that a great deal of work would be required to show that any of them can overcome the difficulty.

An observation that has underpinned much of the discussion is this: the principal theoretical role of the cognised semantic theory gives us reason to think that the cognised semantic theory does *not* encode a solution to the liar paradox. I think that it is from this observation that the difficulties arise: if the cognised semantic theory does not encode a solution to the liar paradox, then there are likely to be problems using it to determine the *correct* semantic theory.

This observation, though, threatens to generalise. In particular, any account of meaning that ties the correct semantic theory too tightly to our linguistic dispositions or intuitions will, I think, face similar problems. The reason that the liar paradox is so difficult to solve is that there are individual claims or principles that we are disposed to treat as true, but that are jointly inconsistent. This is likely to be reflected in the cognitive and causal mechanisms that underpin those dispositions, and by our linguistic behaviour more generally. In light of the liar paradox, a great deal of care must be taken in giving, in terms such as these, an account of literal, linguistic meaning.

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